PROCEEDINGS

OF

THE ROYAL SOCIETY.

1840. No. 43.

April 2, 1840.

The MARQUIS of NORTHAMPTON, President, in the Chair.

His Grace the Duke of Richmond and John Gwyn Jefferys, Esq., were balloted for, and duly elected into the Society.

The following papers were read, viz.:

"Additional note to the Eleventh Series of Researches on the Tides." By the Rev. William Whewell, B.D., F.R.S., &c.

As an appendix to his former memoir on tide observations, the author gives in the present paper the results of observations made at Petropaulofsk, in the bay of Avatcha, in Kamtchatka, lat. 53° 1′ N., long. 158° 44′ E., by the officers and men of the Seuivine, commanded by the present Russian Admiral Lütke; and which were conducted with great care and perseverance. The height of the surface was noted every ten minutes, both day and night, and when near its maximum every two minutes.

It appears from these observations that the high water is affected in its time by a very large diurnal inequality, reaching the enormous amount of above four hours; while its height is only slightly affected by an inequality of that kind; the greatest alternate inequalities of height were something more than a foot. In the low waters, there appears a much smaller inequality in the times, seldom amounting to more than one hour; but with regard to height, the diurnal inequality is much larger than that for high water, reaching to three, or even four feet; and this in a tide of which the whole rise, from the lowest to the highest, rarely exceeds five feet. The theory of these phenomena is then discussed.

The results of another series of observations made in July 1827, at the port of Novo-Arkhangelsk, in the island of Sitkhœ, in Norfolk Sound (lat. 57° 2′ N., long. 135° 18′ W.), are also given, and their theory considered.

A paper was also in part read, entitled, "On the Nervous System." By Sir Charles Bell, F.R.S.